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AUTHOR Gee, Mimi S.; And Others
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ABSTRACT

Interventions designed to prevent drug abuse have typically focused on the gateway drugs of tobacco, alcohol, and marijuana, on the assumption that such prevention would indirectly prevent use of harder substances. Little data has been available, however, for examining the onset of harder substance use in a normal adolescent population. This study, based on two waves of data collected as part of Project SMART (Self Management and Resistance Training), examined the prospective prediction of harder drug use. Questionnaires on hard drug use were completed by ninth graders (N=1,450) in the 1985 school year who had completed soft drug use and psychosocial questionnaires one year earlier. The results identified top predictors of use of each hard drug examined (cocaine, heroin, lysergic acid diethylamide, stimulants, sedatives) as being: (1) use of marijuana; (2) intention to use soft drugs (cigarettes, alcohol, marijuana) if offered; (3) use of cigarettes; and (4) use of alcohol. These findings support the model that soft drug use precedes hard drug use. Risk-taking/rebelliousness showed a strong correlation across all the hard drugs. Overall prior soft drug use, friends' use, and availability of soft drugs were highly correlated with hard drug use. Intent to use soft drugs if offered, belief in the positive consequences of soft drug use, and risk-taking/rebelliousness were psychosocial variables that related to all hard drugs studied.
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LONGITUDINAL CORRELATES OF HARD DRUG USE

Mimi S. Gee, John W. Graham,
Brian R. Flay, William B. Hansen, and C. Anderson Johnson

Institute for Health Promotion and Disease Prevention Research
and Department of Preventive Medicine

University of Southern California

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Introduction

Interventions designed to prevent drug abuse have typically focussed on the gateway drugs: cigarettes, alcohol, and marijuana. It is assumed that preventing use of these "softer" drugs indirectly prevents use of harder substances such as cocaine, heroin, LSD, barbiturates, and amphetamines. Little data has been available for examining the onset of harder substance use in a normal adolescent population. Identifying the correlates of drug use has been studied by investigators for many years. Recent literature, especially related to smoking in adolescents, (Flay, et al., 1982; McAlister et al, 1979) suggest that there can be confidence in the relationship between drug use and only some of the variables studied. These variables can be grouped into two categories, 1) those variables which may set the stage for drug use (ie. quality of lifestyle, social influences (family and peer beliefs, attitudes, and behavior), self-image (grade point average, self-esteem, rebelliousness, risk-taking, etc.), SES, and knowledge, beliefs, and intentions relevant to drug use, and 2) other variables which can be viewed as having a direct relationship to drug use (ie. Friend's use of drugs, and availability of drugs. This evidence, and recent research in adolescent smoking prevention (Hurd, et al., 1980; Luepker et al., 1983) has led to the development of a comprehensive model of drug-use acquisition and maintenance (Flay, et al., 1983).

This theoretical model, forms the basis for Project SMART, a 5-year intervention program designed to reduce the onset of cigarette, alcohol, and marijuana use among adolescents. The intervention was designed to have a direct effect on various components of the model, with the indirect result of reduced onset of drug use and is discussed more fully by Grossman et al., 1983.

The present study presents data bearing on the prospective prediction of harder drug use, and is based on two waves of data collected as part of Project SMART. Questionnaires on the hard drug-use were implemented to ninth graders in 1985 school year (time-2) and the soft drug-use and psychosocial questionnaires were given to these students in 1984 when they were eighth graders (time-1). Data from two different samples of these students were studied for cross-validation.

Methods

Table 1

There were approximately 1,450 students in both samples. Their ethnic makeup was 43% Hispanic, 31% White, 19% Black, and 7% Asian for the first sample, which is similar to the second sample except there is a smaller % of whites in the second sample. The gender of the students in both samples was 50% male and female. In both samples approximately 73% were 13 year olds and approximately 25% were 14 year olds. All measures were from self-reported data, but were augmented by obtaining a carbon monoxide sample from each student at the time of measure.

Cocaine use was measured by a composite of two items, lifetime use and use in the previous month. Whereas, Heroin (and other opiates), LSD (and other hallucinogens), Downers, and Uppers use were each measured by one item, lifetime use.

Based on previous factor analyses, 34 composite indices were constructed for psychosocial constructs and the use of the softer drugs, cigarettes, alcohol, and marijuana (Graham, et al., 1985). Zero-order (Pearson product-moment) correlations were obtained between the time-1 measures of the 34 psychosocial and soft drug constructs and the time-2 measure of each hard drug. Each hard drug measure was then regressed on predictor indices having zero-order correlations of $r = .10$ or greater. The results from the multiple regression analysis were consistent with the correlation and will not be shown here. High correlations among predictors limited the interpretability of obtained multiple regression weights. Overall, however, the psychosocial and soft drug use constructs measured at time1 accounted for 20.4%, 11.0%, 24.8%, 18.1%, and 24.3% of the variance for time-2 measures of cocaine, heroin, LSD, Downers, and uppers use, respectively.

Results

Table 2

The zero order correlations were rank ordered. Among the top five predictors of each hard drug were: use of marijuana (lifetime, previous month and week), intention to use soft drugs if offered, use of cigarettes (lifetime, previous month and week), and use of alcohol (lifetime, previous month and week).

Table 3

In this table SD = soft drugs, cigarettes, alcohol, and marijuana.

Risk Taking-rebelliousness was also a strong predictor for each of the hard drugs. Other strong predictors of hard drug use can be divided into those variables whose definition is associated with soft drug use, grouped here as Drug Associated Predictors, ie. + consequences of soft drug use, and those variables that one does not intuitively associated with soft drug use, grouped as non-Drug Associated Predictors, ie. Trouble with school authorities in the past year.

The soft drug associated predictors of hard drug use which were significant for all 5 hard drugs include Belief in the positive consequences of SD use (ie. Does SD make it easier to be part of a group, parties more fun, everything seem better?), # of Close friends who use SDs, and How readily can SDs be obtained if so desired by the student).

The strongest non-SD associated predictors of hard drug use varied from hard drug to hard drug. These other predictors of cocaine use included Trouble with school authorities in the past year, and Not caring about parental reaction to SD use. The other predictors of heroin included Low grades and dissatisfaction with school and Lack

of religious beliefs. Among the stronger predictors of LSD use was Trouble with school authorities in the past year. The other predictors of Downers use included Not caring about parental reaction to SD use. Finally, the other predictors of Uppers use included Low grades and dissatisfaction with school. All of these correlations held up between Sample1 and Sample2 and in the same direction, except for lack of religion as a predictor of heroin use, which was significant only in one sample. The non-significant results of certain predictor and hard drug correlations were replaced by * for easy viewing of trends.

Constructs that were generally least predictive were: time spent talking with parents and friends, level of communication skills, SES, beliefs about adults' use of soft drugs, and beliefs about the relief from negative states (shyness, nervousness, loneliness) with SD use.

Discussion

The results from this study support the model (Kandel, 1975) that soft drug use precedes hard drug use. Although these findings are consistent with the model it does not indicate the temporal order of drug use. Another interesting result was the strong correlation between intention to use soft drug if offered and use of hard drugs.

The beliefs/psychosocial predictors did not show a pattern as I might have anticipated (ie. uppers, stimulants and cocaine, a stimulant did not have the same non-drug associated predictors; nor did uppers and downers, both taken orally). The reason for this is not clear at this time. Risk taking/rebelliousness was a psychosocial predictor that showed a strong correlation across all the hard drugs. Overall prior soft drug use, friend's use, and availability of soft drugs were highly correlated with hard drug use. In addition intent to use soft drugs if offered, belief in the positive consequences of soft drug use, and risk-taking/rebelliousness were the psychosocial variables that relates to all the hard drugs.

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TABLE 1

	SAMPLE1 DISTRIBUTION N = 1452	SAMPLE2 DISTRIBUTION N = 1450
	PERCENTAGES	PERCENTAGES
<u>ETHNICITY</u>		
ASIAN	6.95	5.93
BLACK	18.8	22.6
HISPANIC	43.2	51.2
WHITE	31.0	14.8
<u>AGE</u>		
13 YRS	73.8	73.0
14 YRS	23.1	25.1
<u>GENDER</u>		
MALE	52.3	50.2
FEMALE	47.5	49.8

TABLE 2

ZERO-ORDER CORRELATES OF HARD-DRUG-USE INDICES

	COCAINE	HEROIN	LSD	DOWNERS	UPPERS
MARIJUANA USE	.41	.24	.38	.28	.33
SD USE IF OFFERED	.37	.24	.34	.31	.35
ALCOHOL USE	.32	.18	.28	.26	.29
CIGARETTE USE	.31	.23	.30	.26	.33

TABLE 3

DRUG ASSOCIATED PREDICTORS

	COCAINE	HEROIN	LSD	DOWNERS	UPPERS
POS. CONSQ. OF SD	.24	.17	.26	.25	.30
FRIEND USE OF SD	.26	.18	.27	.19	.27
AVAILABILITY OF SD	.23	.14	.17	.16	.19

NON-DRUG ASSOCIATED PREDICTORS

	COCAINE	HEROIN	LSD	DOWNERS	UPPERS
PAST TROUBLE	.26	*	.18	*	*
NOT CARE ABOUT PARENT RXN	.23	*	*	.18	*
LOW GRADES/DISSAT. WITH SCHOOL	*	.15	*	*	.17
LACK OF RELIGIOUS BELIEFS	*	.15	*	*	*
* = NON-SIGNIFICANT					
RISK-TAKING/ REBELLIOUSNESS	.23	.15	.22	.24	.26